Math 357
Long quiz 01A

2024–02–05 (M)

Your name: _____

Let $(R, +, \times)$ be a commutative ring with a (multiplicative) identity $1 \neq 0$, and let $I \trianglelefteq R$ be an ideal. Prove the following.

(a) $I = R$ if and only if I contains a unit.

(b) R is a field if and only if its only ideals are (0) and (1).